What is claimed is:

1.   A multiple-domain processing system, comprising:

     a first processing domain having a first host processor and at least one first end node;

     a second processing domain having a second host processor and at least one second end node; and

     a multi-dimensional switching fabric coupled to said first processing domain and said second processing domain to provide peer-to-peer packet communication within said processing system on multiple orthogonal planes, a first plane providing intra-domain packet communication and a second plane providing inter-domain packet communication.

2.   The multiple-domain processing system of claim 1, wherein:

     said first host processor includes a tightly-coupled processor complex.

3.   The multiple-domain processing system of claim 2, wherein:

     said first and second processing domains are loosely-coupled.

4.   The multiple-domain processing system of claim 1, wherein:

     said multi-dimensional switching fabric includes at least one local switch associated with said first processing domain, at least one local switch associated with said second processing domain, and at least one global switch to provide packet communication between said first and second processing domains.

5.   The multiple-domain processing system of claim 4, wherein:

     said at least one local switch associated with said first processing domain includes local packet routing information and global packet routing information.

1   6.   The multiple-domain processing system of claim 5, wherein:

2   said local packet routing information includes a local lookup table and said

3   global packet routing information includes a global lookup table.

1   7.   The multiple-domain processing system of claim 5, wherein:

2   said local packet routing information includes memory map information and

3   said global packet routing information includes a global lookup table.

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1   8.   The multiple-domain processing system of claim 5, wherein:

2   said at least one local switch associated with said first processing domain

3   selects, based on information within a received packet, either the local packet routing

4   information or the global packet routing information for use in routing the received

5   packet.

1   9.   The multiple-domain processing system of claim 8, wherein:

2   said information within said received packet includes a local/global flag.

1   10.   The multiple-domain processing system of claim 8, wherein:

2   said information within said received packet includes packet destination

3   information.

1   11.   The multiple-domain processing system of claim 4, wherein:

2   said at least one global switch includes global packet routing information for

3   use in routing a received packet based on destination domain information within the

4   received packet.

1   12.   The multiple-domain processing system of claim 1, wherein:

2   said first host processor includes a packet generator to generate a packet for

3   delivery to a destination node that includes information identifying a domain of the

4   destination node.

1   13.   The multiple-domain processing system of claim 1, wherein:

2   said first host processor includes a packet generator to generate a packet for

3   delivery to a destination node that includes information identifying a plane within the

4   multi-dimensional switching fabric in which the packet is to be routed.

1   14.   A multiple-domain processing system, comprising:

2   a first processing domain having a first host processor, at least one first local

3   switch, and at least one first end node, said at least one first local switch to provide

4   packet communication between said first host processor and said at least one first end

5   node;

6   a second processing domain having a second host processor, at least one second

7   local switch, and at least one second end node, said at least one second local switch to

8   provide packet communication between said second host processor and said at least one

9   second end node; and

10   at least one global switch to provide packet communication between a first local

11   switch in said first processing domain and a second local switch in said second

12   processing domain.

1   15.   The multiple-domain processing system of claim 14, wherein:

2   said at least one first local switch includes local routing information and global

3   routing information.

1   16.   The multiple-domain processing system of claim 15, wherein:

2   said at least one first local switch selects, based on information within a

3   received packet, either the local routing information or the global routing information

4   for use in routing the received packet.

1   17.   The multiple-domain processing system of claim 15, wherein:

2   said local routing information includes memory map information for said first

3   processing domain.

1   18.   The multiple-domain processing system of claim 14, wherein:

2   said at least one global switch includes a filter to block a received packet that is

3   identified as a local packet.

1   19.   The multiple-domain processing system of claim 14, wherein:

2   said at least one global switch includes a toggle unit to change a local/global

3   flag within a received packet from global to local.

1   20.   The multiple-domain processing system of claim 14, wherein:

2   said at least one global switch includes global packet routing information for

3   use in routing a received packet based on destination domain information within the

4   received packet.

1   21.   The multiple-domain processing system of claim 14, wherein:

2   said first processing domain and said second processing domain utilize different

3   operating systems.

1   22.   The multiple-domain processing system of claim 14, wherein:

2   said first processing domain and said second processing domain utilize different

3   switching fabric technologies.

1   23.   A switch for use in a multi-dimensional switching fabric in a multiple-domain

2   processing system, comprising:

3   first memory space to store first packet routing information for routing

4   operations within a first orthogonal plane;

5   second memory space to store second packet routing information for routing

6   operations within a second orthogonal plane; and

7   a selection unit to select, based on information within a received packet, either

8   the first packet routing information or the second packet routing information for use in

9   routing the received packet.

1   24.   The switch of claim 23, wherein:

2   the first packet routing information includes information for use in routing

3   packets that are to remain within a single processing domain in the multiple-domain

4   processing system.

1   25.   The switch of claim 24, wherein:

2   the second packet routing information includes information for use in routing

3   packets that are to travel between processing domains in the multiple-domain

4   processing system.

1   26.   The switch of claim 25, further comprising:

2   third memory space to store third packet routing information for routing

3   operations within a third orthogonal plane, said third packet routing information to

4   include information for use in routing packets that are to travel between a first multiple-

5   domain processing system and a second multiple-domain processing system, wherein

6   said selection unit selects either the first, second or third packet routing information

7   based on information within the received packet.

1   27.   The switch of claim 23, wherein:

2   the first packet routing information includes information for use in routing

3   packets that are to travel between processing domains in the multiple-domain

4   processing system.

1 28. The switch of claim 27, wherein:

2   the second packet routing information includes information for use in routing

3 packets that are to travel between a first multiple-domain processing system and a

4 second multiple-domain processing system.

1 29. The switch of claim 23, wherein:

2   the first packet routing information is to be stored as a first lookup table and the

3 second packet routing information is to be stored as a second lookup table.

1 30. The switch of claim 23, wherein:

2   said selection unit selects either the first packet routing information or the

3 second packet routing information based on a flag within the received packet.

1 31. A method for configuring a multiple-domain processing system having a multi-

2 dimensional switching fabric, comprising:

3   discovering end nodes within each of a plurality of processing domains in the

4 multiple-domain processing system and assembling information relating thereto;

5   identifying a system manager node within the multiple-domain processing

6 system; and

7   discovering domains in the multiple-domain processing system, from the system

8 manager node, and assembling information relating to said discovered domains, said

9 information relating to said discovered domains including information assembled while

10 discovering end nodes.

1 32. The method of claim 31, wherein:

2   discovering end nodes includes transmitting local configuration packets within

3 each of said plurality of processing domains.

1   33.   The method of claim 32, wherein:

2   said plurality of processing domains includes a first processing domain and a

3   second processing domain, wherein said method further comprises blocking local

4   configuration packets transmitted within the first processing domain from being

5   delivered to the second processing domain.

1   34.   The method of claim 31, wherein:

2   said plurality of processing domains each include a host processor, wherein

3   discovering end nodes includes discovering end nodes from a corresponding host

4   processor within each of said plurality of processing domains.

1   35.   The method of claim 34, wherein:

2   identifying a system manager node within the multiple-domain processing

3   system includes identifying a host processor within one of said plurality of processing

4   domains.

1   36.   The method of claim 31, wherein:

2   discovering domains in the multiple-domain processing system includes

3   transmitting global configuration packets from the system manager node to other

4   domains through the multi-dimensional switching fabric.

1   37.   The method of claim 36, wherein:

2   discovering domains in the multiple-domain processing system includes

3   receiving information from other domains, in response to said global configuration

4   packets, that relates to available processing nodes within the other domains.

1   38.   The method of claim 31, further comprising:

2   generating local routing information for use within a local switch associated

3   with a first processing domain using information assembled while discovering end

4   nodes within said first processing domain.

1   39.   The method of claim 38, further comprising:

2   generating global routing information for use within said local switch associated

3   with said first processing domain using information assembled while discovering

4   domains in the multiple-domain processing system.

1   40.   The method of claim 31, further comprising:

2   generating global routing information for use within a global switch within the

3   multi-dimensional switching fabric using information assembled while discovering

4   domains in the multiple-domain processing system.

1   41.   The method of claim 31, wherein:

2   discovering end nodes within a first processing domain includes generating a

3   memory map identifying resources within said first processing domain.